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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

CASE STUDY MIDWAY

MAJOR PATRICK M. ST. ROMAIN 87-2395

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Case Study Midway incorporates the principles of war from AFM 1-1, the definition of friction of war and illustrates those concepts using the events from the Battle of Midway. It was designed as a reading and study guide for sophomore level cadets at the Air Force Academy.

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PREFACE

1. As a part of the curricula at the United States Air Force Academy the principles of war and the concept of friction of war are taught in the Military Studies Division. Every cadet will study these concepts as an important part of his or her military studies. It is important for the professional to understand these concepts and be able to apply them in future studies in the art of war.

2. This reading was not written as an original piece of research to find new conclusions or to divulge new information, but to illustrate the concept of friction in war and the principles of war as defined in AFM 1-1, and to serve as a single source for cadet studying purposes.

3. By consolidating the facts concerning the Battle of Midway, the principles of war found in AFM 1-1, and the definition of friction of war, it is possible to save the Air Force the costs involved in issuing three books to the cadets plus make it possible for the cadets to have a single source document

ABOUT THE AUTHOR

Major Patrick M. St. Romain holds a Bachelor of Science Degree in History with a minor in Political Science from the University of Southern Mississippi. He also holds a Master of Science Degree in Public Administration from Troy State University in Alabama. His professional military education includes Marine Command and Staff by correspondence and Air Command and Staff College by correspondence. He is now attending Air Command and Staff College in residence at Maxwell AFB, Alabama. Major St. Romain's operational experience includes four years in the Marines as an enlisted man with one combat tour in Vietnam in 1968. After gaining his commission through the Air Force ROTC program, he attended Air Force Undergraduate Helicopter Flight Training at Ft. Rucker, Alabama. His two assignments flying helicopters in the Air Force include one tour with the 20th Special Operations Squadron and one tour with the 67th Aerospace Rescue and Recovery Squadron in England. He then went to the Air Force Academy where he was an Assistant Professor of Military Studies. He taught cadets courses in the foundations of the US military, theater warfare, and air power theory and doctrine. While at the Academy he was both an Associate Air Officer Commanding and Military Training Officer for a cadet squadron.

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Part of our College mission is distribution of the students' problem solving products to DoD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

"insights into tomorrow"

REPORT NUMBER 87-2395

AUTHOR MAJOR PATRICK M. ST. ROMAIN, USAF

TITLE CASE STUDY MIDWAY

Purpose: To use a case study of the Battle of Midway to illustrate the principles of war and the concept of friction of war for use by second-year cadets at the Air Force Academy

II. Problem: The introduction of the principles of war and the concept of friction of war are now accomplished by Professionnal Military Studies (PMS) - 221 in a three-hour block of instruction. The cadets are issued two books and shown a movie then three hours of classroom time is spent illustrating these concepts. The cost of the books and the administrative burden of issuing the material is not only time consuming but expensive.

III. Conclusions: A reading such as this consolidates the assigned readings, saving the cost of both books. It also defines friction of war and illustrates both the concept of friction and the principles of war. Finally, it serves as a single source document for studying purposes.

IV. Recommendations: This reading should be reproduced at the Air Force Academy and issued to second year cadets as a reading for PMS - 221, Air Power Theory and Doctrine.

Chapter One

PRINCIPLES OF WAR

Rather than trying to recreate the wheel, the following principles will be taken verbatim from Air Force Manual 1-1 (AFM 1-1). It is not necessary to learn entire definitions, but to understand their meaning so you can put them in your own words. Later you will see these principles used in a case study. These principles are not used as a checklist to success, but as a guide. A commander that uses all the principles in order and correctly is not assured victory nor is the commander who violates one or more doomed to defeat. The following principles are taken from Chapter Two of AFM 1-1

> The principles of war represent generally accepted major truths which have been proved successful in the art and science of conducting war. Warfighting is an extremely complex activity involving differing circumstances and uncertainties. As a result, the relative importance among the warfighting principles will vary with the situation. The following section discusses warfighting principles that have been demonstrated to be successful in past military operations, and, if disregarded, would presage a high degree of risk and possible failure in future military actions.
>
> Principles of war have taken many forms and have been treated differently by various military communities. Some military scholars and philosophers would urge that the principles of war should be abandoned, while others would enshrine the principles of war as a roadmap to success in warfare. Neither view is entirely appropriate. The first view would ignore the educational and guiding influence of the principles of war, while the second view would tend to abuse the principles of war as some sort of recipe that supplants initiative and improvisation. All of the principles of war are interrelated and interacting elements of warfare. They are not separate and distinct entities from which a commander selectively chooses and applies to employing forces. Put in perspective, the principles of war help provide a better understanding of warfare, but the understanding and mastery of this art requires a depth of knowledge far beyond mere principles. Accordingly, aerospace doctrine flows from these principles and provides mutually accepted and officially sanctioned guidelines to the application of these principles in warfare.
>
> The most basic principle for success in any military

operation is a clear and concise statement of a realistic **objective.** The objective defines what the military action intends to accomplish and normally describes the nature and scope of an operation. An objective may vary from the overall aim of a broad military operation to the desired outcome of a specific attack. The ultimate military objective of war is to neutralize or destroy the enemy's armed forces and his will to fight. However, the intimate bond which ties war to politics cannot be ignored. War is a means to achieving a political end. Consequently, political imperatives shape and define military objectives. It follows that the objective of each military operation must contribute to the overall political objective

Success in achieving objectives depends greatly on the knowledge, strategy, and leadership of the commander. The commander must ensure that assigned forces are properly used to attain the objective. This requires that objectives be disseminated and fully understood throughout all appropriate levels of command. Clear and concise statements of objective greatly enhance the ability of subordinates to understand guidance and take appropriate actions. For aerospace operations, the air commander develops his broad strategy based on the primary objective, mindful of the capabilities and actions of the enemy, the environment, and sound military doctrine. Broad strategies, derived from this combination of factors, form the basis for selecting targets, means of attack, tactics of employment, and the phasing and timing of aerospace forces is achieving the objective through the knowledgeable use of men and their machines.

Unless **offensive** action is initiated, military victory is seldom possible. The principle of offensive is to act rather than react. The offensive enables commanders to select priorities of attack, as well as the time, place, and weaponry necessary to achieve objectives. Aerospace forces possess a capability to seize the offensive and can be employed rapidly and directly against enemy targets. Aerospace forces have the power to penetrate to the heart of an enemy's strength without first defeating defending forces in detail. Therefore, to take full advantage of the capabilities of aerospace power, it is imperative that air commanders seize the offensive at the very outset of hostilities.

Surprise is the attack of an enemy at a time, place, and manner for which the enemy is neither prepared nor expecting an attack. The principle of surprise is achieved when an enemy is unable to react effectively to an attack. It is achieved through security, deception, audacity, originality, and timely execution. Surprise can decisively shift the balance of power. Surprise gives attacking forces the advantage of seizing the initiative while forcing the enemy to react. When other factors influencing the conduct of war are unfavorable, surprise may be the key element in achieving the objective. The execution of surprise attacks can often reverse the military situation,

generate opportunities for air and surface forces to seize the offensive, and disrupt the cohesion and fighting effectiveness of enemy forces. Surprise is a most powerful influence in aerospace operations, and commanders must make every effort to attain it. Surprise requires a commander to have adequate command, control, and communications to direct his forces, accurate intelligence information to exploit enemy weaknesses, effective deception to divert enemy attention, and sufficient security to deny an enemy sufficient warning and reaction to a surprise attack.

Security protects friendly military operations from enemy activities which could hamper or defeat aerospace forces. Security is taking continuous, positive measures to prevent surprise and preserve freedom of action. Security involves active and passive defensive measures and the denial of useful capabilities and actions requires a concerted effort in both effective enemy attack through defensive operations and by masking the location, strength, and intentions of friendly forces. In conducting these actions, air commanders at all levels are ultimately responsible for the security of their forces. Security in aerospace operations is achieved through a combination of factors such as secrecy, disguise, operational security, deception, dispersal, maneuver, timing, posturing, and the defense and hardening of forces. Security is enhanced by establishing an effective command, control, communications, and intelligence network. Intelligence efforts minimize the potential for enemy actions to achieve surprise or maintain an initiative; effective command, control and communications permit friendly forces to exploit enemy weakness and respond to enemy actions.

Success in achieving objectives with aerospace power requires a proper balance between the principles of **mass** and **economy of force.** Concentrated firepower can overwhelm enemy defenses and secure an objective at the right time and place. Because of their characteristics and capabilities, aerospace forces possess the ability to concentrate enormous decisive striking power upon selected targets when and where it is needed most. The impact of these attacks can break the enemy's defenses, disrupt his plan of attack, destroy the cohesion of his forces, produce the psychological shock that may thwart a critical enemy thrust, or create an opportunity for friendly forces to seize the offensive. Concurrently, using economy of force permits a commander to execute attacks with appropriate mass at the critical time and place without wasting resources on secondary objectives. War will always involve the determination of priorities. The difficulty in determining these priorities is directly proportional to the capabilities and actions of the enemy and the combat environment. Commanders, at all levels, must determine and continually refine priorities among competing demands for limited aerospace assets. This requires a balance between

mass and economy of force, but the paramount consideration for commanders must always be the objective. Expending excessive efforts on secondary objectives would tend to dissipate the strength of aerospace forces and possibly render them incapable of achieving the primary objective. Economy of force helps to preserve the strength of aerospace forces and to retain the capability to employ decisive firepower when and where it is needed most.

War is a complex interaction of moves and countermoves. **Maneuver** is the movement of friendly forces in relation to enemy forces. Commanders seek to maneuver their strengths selectively against an enemy's weakness while avoiding engagements with forces of superior strength. Effective use of maneuver can maintain the initiative, dictate the terms of engagement, retain security, and position forces at the right time and place to execute surprise attacks. Maneuver permits rapid massing of combat power and effective disengagement of forces. While maneuver is essential, it is not without risk. Moving large forces can lead to loss of cohesion and control.

Timing and tempo is the principle of executing military operations at a point in time and at a rate which optimizes the use of friendly forces and which inhibits or denies the effectiveness of enemy forces. The purpose is to dominate the action, remain unpredictable, and create uncertainty in the mind of the enemy. Commanders seek to influence the timing and tempo of military actions by seizing the initiative and operating beyond the enemy's ability to react effectively. Consequently, attacks against an enemy must be executed at a time, frequency, and intensity that will do the most to achieve objectives. Timing and tempo requires that commanders have an intelligence communications network that can responsively direct combat power to take advantage of those opportunities.

Unity of command is the principle of vesting appropriate authority and responsibility in a single commander to effect unity of effort in carrying out an assigned task. Unity of command provides for the effective exercise of leadership and power of decision over assigned forces for the purpose of achieving a common objective. Unity of command, combined with common doctrine, obtains unity of effort by the coordinated action of all forces toward a common goal. While coordination may be attained by cooperation, it is best achieved by giving a single commander full authority.

Unity of command is imperative to employing all aerospace forces effectively. The versatility and decisive striking power of aerospace forces places an intense demand on these forces in unified action. To take full advantage of these qualities, aerospace forces are employed as an entity through the overall air effort to achieve stated objectives. Effective leadership through unity of command produces a unified air effort that can deliver decisive blows against an enemy,

dissipate his strengths, and exploit his weaknesses. The air commander, as the central authority for the air effort, develops strategies and plans, determines priorities, allocates resources, and controls assigned aerospace forces to achieve the primary objective. Success in carrying out these actions is greatly enhanced by an effective command, control, communications, and intelligence network.

To achieve a unity of effort toward a common goal, guidance must be quick, clear, and concise----it must have **simplicity**. Simplicity promotes understanding, reduces confusion, and permits ease of execution in the intense and uncertain environment of combat. Simplicity adds to the cohesion of a force by providing unambiguous guidance that fosters a clear understanding of expected actions. Simplicity is an important ingredient in achieving victory, and it must pervade all levels of a military operation. Extensive and meticulous preparation in peacetime enhances the simplicity of an operation during the confusion and friction of wartime. Command structures, strategies, plans, tactics, and procedures must all be clear, simple, and unencumbered to permit ease of execution. Commanders must strive to establish simplicity in these areas, and their peacetime exercise of forces must pursue that same goal. The promulgation and exercise of mutually accepted guidelines in peacetime enhances the ability of subordinates to comprehend the orders and directions of commanders during the stress of combat.

Logistics is the principle of sustaining both man and machine in combat by obtaining, moving, and maintaining warfighting potential. Success in warfare depends on getting sufficient men and machines in the right position at the right time. This requires that a simple, secure, and flexible logistics system be an integral part of an air operation Regardless of the scope and nature of a military operation, logistics is one principle that must always be given attention. Logistics can limit the extent of an operation or permit the attainment of objectives. In sustained air warfare, logistics may require the constant attention of the commander. This competing demand will also impose a heavy burden on a command, control, and communications network. The information, mechanics, and decisions required to get men, machines, and their required material where and when they are needed is extensive and demanding. During intense combat, these logistics decisions may even tend to saturate the time and attention of a commander.

To reduce the stresses imposed by potentially critical logistics decisions, commanders must establish a simple and secure logistical system in peacetime that can reduce the burden of constant attention in wartime.

Effective logistics also requires a flexible system that can function in all combat environments and that can respond to abrupt and sudden change. For example, if weather or enemy

activities force a move in operating locations, sustaining an air operation may depend on a logistics system that can respond to that exigency. Therefore, in preparing for war, air commanders must establish and integrate a logistics system that can keep pace with the requirements of air operations in combat. This requires a flexible logistics system that is not fixed, and one that can provide warfighting potential when and where it is needed.

Cohesion is the principle of establishing and maintaining the warfighting spirit and capability of a force to win. Cohesion is the cement that holds a unit together through the trials of combat and is critical to the fighting effectiveness of a force. Throughout military experience, cohesive forces have generally achieved victory, while disjointed efforts have usually met defeat. Cohesion depends directly on the spirit a leader inspires in his people, the shared experiences of a force in training or combat, and the sustained operational capability of a force. Commanders build cohesion through effective leadership and by generating a sense of common indentity and shared purpose. Leaders maintain cohesion by communicating objectives clearly, demonstrating genuine concern for the morale and welfare of their people, and employing men and machines according to the dictates of sound military doctrine. Cohesion in a force is produced over time through effective leadership at all levels of command (8:2-4 - 2-10).

The previous definitions of the principles of war were taken from AFM 1-1, Chapter Two. I will restate these principles in my own words just as you should be able to do. It is important that you form in your own mind a usable definition that you can apply when critically analyzing a battle.

The **objective** is a clear and concise statement of the goal of any military action.

The **offensive** enables the commander to select when, where, and with what weaponry to attack, to act rather than react.

Surprise is achieved when an enemy is unable to react effectively to an attack.

Security prevents you from being surprised while allowing you freedom of action.

Mass is the concentration of striking power where it is needed most **Economy of force** is using the appropriate mass at a critical time and place without wasting resources on secondary objectives.

Maneuver is moving friendly forces against enemy weakness while avoiding stronger enemy forces.

Timing and tempo is attacking the enemy at a time, frequency, and intensity that will do the most to achieve objectives.

Unity of command is best achieved by giving a single commander full authority.

Simplicity is having clear, simple, and easy to understand command structures, strategies, plans, tactics, and procedures to ease their execution.

Logistics is getting enough men and machines in the right place at the right time and maintaining their warfighting potential

Cohesion is establishing and maintaining the warfighting spirit. Cohesion is the glue that holds a unit together when the going gets tough

These bullet statements are how I explain the principles of war. Some are definitions while others are statements of what the particular principle will accomplish or how it is to be accomplished. The purpose of understanding the principles is to provide guidelines for planning and conducting future battles. The **objective** is the only end in the principles; all others are means/ways to accomplish that end. You should be forming something like these statements in your own mind to help you in the future.

Chapter Two

FRICTION OF WAR

Carl von Clausewitz in his book *ON WAR* writes of the friction of war. Only once does he mention the word fog and that is when he is referring to the weather. What then do we mean when we say "the friction and fog of war"? Operations rarely happen as they were planned. Even without enemy action, things do go wrong. This is what we call the friction of war. The fog of war is that almost impossible task for senior commanders to gain a coherent impression of what is happening on the battlefield while it is happening. Clausewitz states, "Everything in war is simple, but the simplest thing is difficult" (2:119). What is he trying to say? An example would be something as simple as flying a pre-planned one hour flight from Stapleton airport in Denver to Peterson AFB only to find weather conditions between the two prohibits a direct flight. To divert around the weather requires a three-hour delay to take on more fuel. Peterson AFB is closed at sunset and the delay for fuel makes the flight impossible during daylight hours. To make things worse, the people you are suppose to pick up at Peterson cannot be reached by phone and will be waiting for you in one hour. What looked simple on paper has become hopeless. When we look at the Battle of Midway, we will see just these kinds of things happening and call them bad luck.

So far you have read the principles of war as stated in AFM 1-1 and restated them in your own words. You have also seen the friction of war makes the simplest things in war difficult. With these things in mind let us carefully go over the events of the Battle of Midway and see if you can pick out those events that match the principles of war and friction in war. Be aware the events I indicate are not the only examples, there are many more This is purely an introduction to the concept of friction in war, you will learn more about this concept when you study Clausewitz your senior year.

Chapter Three

KEY PLAYERS

Admiral Chester A. Nimitz, Commander-in-Chief, Pacific Fleet, was a submarine officer. Nimitz had the reputation of being able to get a lot done with a little. He was soft-spoken, relaxed, and a team player, who led by example (7:145). He had both the courage and the wisdom to allow his task force commanders to fight without interference from him.

Admiral Isoroku Yamamoto was Commander-in-Chief of the Combined Fleet. Yamamoto was one of Japan's greatest admirals. He led the fleet that attacked Pearl Harbor in 1941 and would lead the Japanese fleet attacking Midway Island. He was opposed to the politics that led Japan into war with the United States, but once commited, led brilliantly (3:5). Unlike Nimitz, Yamamoto never relinquished operational command to his subordinates.

Vice Admiral Chuichi Nagumo was aristocratic, conservative, and a samurai. He led a massive task force against Pearl Harbor and was the leader of First Carrier Striking Force. A traditionalist, he thought sea battles were decided by the great battleships, not by a few flimsy aircraft. A cautious man, he had ignored staff advice that a follow-up strike should be launched to destroy the repair facilities and fuel supplies at Pearl Harbor (3:1,23-24).

Vice Admiral William Halsey, originally a battleship officer, was one of the more senior carrier commanders at the time and the logical choice to lead the US Fleet in response to the Japanese attack at Midway Island. Laid up with a skin rash in Pearl Harbor hospital, he selected Spruance as his replacement. Yamamoto's plan was dependent on Halsey leading the fleet (7:169).

Rear Admiral Frank Jack Fletcher was commander of Task Force 17, and the senior US commander at Midway (3:77). Although not an aviator, he was one of the more experienced carrier commanders early in the war. Because he was not an aviator, he was more cautious than Halsey (Halsey had become an aviator at age 52). When Fletcher's flag ship was damaged at Midway, he turned over operational command to Spruance (5:289).

Rear Admiral Raymond A. Spruance was commander of Task Force 16 at Midway. Although not an aviator nor a carrier commander, he was recommended by Halsey because of his skill as a cruiser commander. Spruance thought out each move thoroughly and had an uncanny ability to

read the enemy's mind (3:87). "No command decision which Nimitz made in connection with Midway was more important, more far-reaching than his selection of Spruance to command Task Force 16" (5:386).

Lieutenant Joichi Tomonaga, leader of the first wave, was on his first mission of the Pacific War (3:83). His selection as leader of the first wave is an example of the overconfidence of the Japanese at Midway.

Captain Miles E. Browning, inherited by Spruance from Halsey's staff, "had the disposition of a snapping turtle" (5:239). Browning "was a mine of information--but he was also erratic, emotionally unstable, and a sloppy administrator" (7:169). It was with his urging that Spruance launched his attack on Nagumo at maximum range in hopes of catching the first wave refueling.

Yamamoto divided his fleet into five separate forces. The Japanese had not really learned from their success at Pearl Harbor and Coral Sea, the significance of air power. This is evident by Yamamoto being with the **Main Body of the Main Force** as it was designated, which was led by three battleships including the *Yamoto*, the largest battleship ever built (5:15).

Between the forces that actually engaged at the Battle of Midway, the US had the numerical advantage in total ships and aircraft. Nagumo's **First Carrier Striking Force**, consisting of 20 total surface ships, four of which were carriers, and 261 aircraft, would face 26 US surface ships, three of which were carriers, 230 carrier-based aircraft and 119 land based aircraft. Because of loses during the battle at Coral Sea, Nagumo would be deprived of one-third of his striking power at Midway (4:296).

Chapter Four

THE BATTLE FOR MIDWAY ISLAND

The Battle of Midway was the first defeat of the Imperial Fleet of Japan in 300 years. Japan lost four of its finest carriers, 3500 seamen, and more than 300 aircraft. The course of the war in the Pacific was completely changed at Midway (3:105). The story of the battle is a textbook example for the military historian since it demonstrates the principles of war and should be read in detail. I will limit this discussion to the important factors concerning the principles of war and will not be going into detail concerning each action taken by individuals or specific units unless they pertain to the discussion.

Why Midway Island? Midway atoll lies about 1150 miles northwest of Hawaii. In 1939 the Navy's Hepburn Board found Midway was "second in importance only to Pearl Harbor" (3:77). The strategic location of Midway, relative to the Hawaiian Islands, would force out the American Fleet. (See Figure 1).

Japan had experienced nothing but success for nearly six months. In Yamamoto's mind he knew Japan must knock America out of the war before the American industrial might could be brought to bear. He proposed Operation MI in early April 1942, the occupation of Midway atoll. The purpose of Operation MI was to lure the American fleet into one massive battle with the Japanese Imperial Fleet. With a Japanese victory the Americans would ask for peace before they were geared for war (3:74). The debate in the Naval General Staff continued until the Doolittle raiders hit Nippon soil with B-25s launched from a carrier, demonstrating Japan's vulnerability to attack. At this time Operation MI went into preparation. The Battle of the Coral Sea took place soon after, this was the first naval battle in history in which the ships themselves did not exchange a shot (3:74). Although a tactical victory for Japan, it was a strategic victory for the US since it was Japan's first setback of the war in the Pacific. Despite the losses at the Coral Sea, nearly one-third of Nagumo's striking force, Yamamoto wanted the other American carriers (3:77).

Yamamoto's flag ship, the *Yamoto*, would lead a fleet of nearly 200 ships. This fleet included eight carriers (four heavies), 11 battleships, 22 cruisers, 65 destroyers, and 21 submarines. He had about 700 aircraft, dive bombers, torpedo bombers, and fighters on the carriers. To face this armada, Fletcher had three heavy carriers (one of which was the *Yorktown*, which the Japanese thought would be many months being repaired from damage received at Coral Sea), seven heavy cruisers and one light cruiser,

and 15 destroyers. His aircraft included about 230 carrier-based, 98 Navy and Marine Midway-based fighters and bombers, 21 B-17s, and B-26 "Marauders," the B-26s having been converted to torpedo bombers.

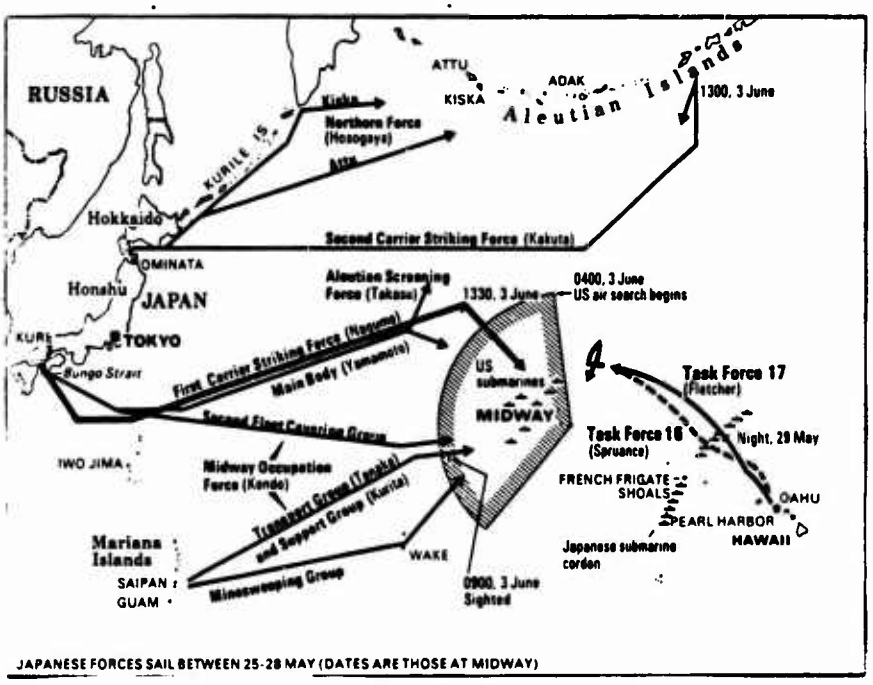

Figure 1 (1:665)

Yamamoto's plan was complex and was dependent primarily on two factors, Nimitz reacting precisely as he predicted, and secrecy. Although critized for his plan by historians, any graduate of the Japanese staff system or war college of the 1930s, and their American counterparts "would have been thoroughly at home with the plan" (7:167). Yamamoto divided his fleet into five separate forces in a characteristic attempt at a diversionary feint. The Second Carrier Striking Force would strike Dutch Harbor, and the Northern Force would attack Attu and Kiska. His hope was an attack this close to the American mainland would draw what remained of the American fleet out of Pearl Harbor. The Main Body of the Main Force would stay in position to help either the Aleutian Forces or those at Midway. The First Carrier Striking Force, with four heavy carriers, would provide the air support for the invasion. The First Carrier Striking Force was the only force actually involved in the Battle of Midway.

The two favorite Japanese techniques, surprise and feint, were doomed from the beginning. US intelligence, had with the aid of "Magic," broken the secret Japanese naval code. Nimitz knew the target and the date of Operation MI. He also knew of the diversionary move against the Aleutians and even the time Yamamoto had set for the air strikes against

Midway. This knowledge forced Nimitz to speed the repair of the *Yorktown* to two days instead of the expected three months. It also allowed him to move his forces into position early, before Japanese submarines could detect their movement.

Yamamoto's complex offensive plan would surely cause the American fleet to respond. After securing Midway Island, Yamamoto would prepare for the arrival of the US fleet. Nimitz, meanwhile, increased the land-based defense on Midway and planned a simple, basically offensive operation. He would send a small hit-and-run force to the Aleutians to harass the Japanese Northern Force and inflict as much damage as possible without sacrificing US ships. His largest force, including the three heavy carriers, would not attack and destroy as many Japanese carriers as possible. Nimitz risked his remaining carrier force only because he believed he knew the Japanese plans and, therefore, believed he had the tactical advantage. He would use air power to the maximum and withdraw rather than engage the Japanese in a surface battle. (See Figure 2).

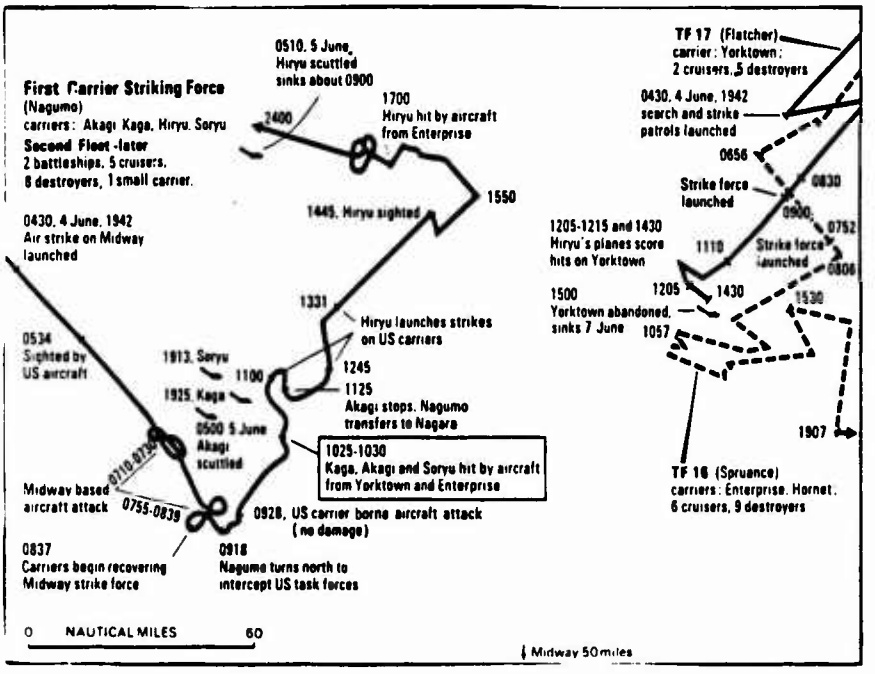

Figure 2 (1:665)

With the highly successful intelligence efforts of the US, coupled with the totally ineffective efforts of the Japanese, Yamamoto would not achieve surprise. Operation "K" was a plan to use, a new 31-ton flying boat, flying from the Marshall Islands, to rendezvous with submarines at French Frigate Shoals to refuel then fly a reconnaissance mission over Hawaii to

find the US fleet. This operation was cancelled when the Japanese submarines reported two US ships at the rendezvous point. An advanced submarine force was to establish a cordon west and northwest of Hawaii to spot the US fleet leaving Pearl Harbor. Due to maintenance and weather delays, the cordon was established three days late on 4 June. The US fleet had already crossed the cordon enroute to Midway. These difficulties experienced by the Japanese resulted in the poor intelligence leading Yamamoto to believe the US fleet was still in the area of the Coral Sea and could not get to Midway until well after it had been occupied. The end result of Japanese and US intelligence efforts was the US had a significant tactical advantage over a much superior force at Midway.

The following is a chronology carefully selected to include those events that demonstrate the principles of war stated earlier. This chronology, which covers the period between 3 and 5 June 1942, is extracted from *Miracle at Midway* by Gordon Prange. Japanese events are in plain type and US events are in bold type.

3 June:

0700 Aleutian Strike Force attacked Dutch Harbor in a relatively fruitless diversion. **The Americans hear the news and knew the attack on Midway would come soon.**

1130 **A PBY search plane spotted large Japanese force southwest of Midway but reported no carriers.** This ended all hopes for surprise but Nagumo was not informed. **Fletcher concluded that this sighting was the Invasion Force and continued to believe the Japanese carriers were northwest of Midway hiding behind a storm front.**

1640 **B-17s from Midway attacked the Invasion Force with no hits.**

4 June:

0400 **11 Catalinas took off from Midway in search of the Japanese Carrier Force.**

0405 **16 B-17s took off to attack the Midway Invasion Force.**

0430 The First Carrier Striking Force began launching the first wave. The second wave was prepared for attack on the US fleet should it appear (aircraft loaded with torpedoes). Japanese and US fleets both began launching search planes.

0500 Number 4 search plane, from the cruiser *Tone*, launched one-half hour late due to catapult problems (Friction)

0530 **A Catalina reported enemy aircraft headed for Midway and the location of the Japanese carriers.**

0600 **B-17s are diverted to the Japanese Carriers**

0607 **Fletcher ordered Spruance to proceed westerly and attack while the *Yorktown* awaited the return of its search planes.** (Timing and Tempo)

0615 **Midway-based fighters met the Japanese First Carrier Striking Force and suffered heavy loses. The B-17s and torpedo planes took off from Midway.**

0630 **Midway came under attack for about 20 minutes.**

0700 **Spruance, on the suggestion of Captain Miles Browning, risked launching his force at maximum range in an effort to catch Nagumo refueling his first wave.** Tomonaga, the leader of the first wave, calls for a second attack on Midway.

0705 Nagumo's Attack Force came under attack by land-based aircraft from Midway (B-26s and torpedo planes).

0715 Convinced now that another attack on Midway was necessary, Nagumo ordered the second wave to down

load torpedoes and rearm with bombs.

0728 The *Tone* search plane reported first sighting of US fleet but failed to note types of ships. Various reports of the US fleet came in over the next few minutes, but Nagumo still did not know the location of the carriers. (Friction)

0745 Nagumo ordered the second wave to stop rearming with bombs.

0755 For the next 45 minutes Nagumo's force came under attack but suffered no hits. Zeros protecting the fleet had to refuel before they could escort the second wave. Unescorted US planes were severly mauled by the Japanese. Nagumo decided not to send the second wave without escorts, and began refueling Zeros.

0840 Before Nagumo could launch the second wave with refueled escorts, Tomonaga's first wave returned low on fuel, and had to be recovered or lost.

0900 After recovering first wave, Nagumo turned north while preparing aircraft for attack on the US fleet. **Due to this move and poor weather, US aircraft had difficulty finding the Japanese carriers. Commander Ring, the Air Group Commander, taking off from the *Hornet*, headed south towards Midway, missing the Japanese fleet. Aircraft from the *Yorktown* hear a broadcast of the Japanese location.**

0920 Nagumo came under attack by Commander Waldron's Torpedo Squadron Eight (VT-8), and for the next 30 minutes, torpedo bombers hurled themselves at Nagumo's carriers. Thirty-five out of 41 torpedo planes were lost and no hits were scored. (Cohesion) **Ensign George Gay was the sole survivor of VT-8 and**

spent the rest of the day in the water under a floating seat cushion. He was awarded the Navy Cross and the Purple Heart.

1020 **US dive bombers arrived while Japanese Zeros and guns were focused at low altitude and attacked the carriers virtually unopposed. Three of the four carriers were hit when most vulnerable--aircraft, bombs, torpedoes, etc. were scattered everywhere. The *Soryu* sank at 1915 and the *Kaga* at 1925 that night. The *Akagi*, Nagumo's flag ship, sank at 0500 the next morning. The *Hiryu* escaped attack under the cover of fog to the north.**

1054 The *Hiryu* launched an attack force against the US fleet.

1200 The *Hiryu* force attacked the *Yorktown* and reported her dead in the water and on fire. Thanks to radar, the *Yorktown* was prepared for the attack (doors closed, fuel lines drained and filled with carbon dioxide gas, etc.). Thirteen of the Japanese bombers and three of six fighters were shot down. Although damaged, the *Yorktown* was repaired and moving under its own power in two hours.

1220 Yamamoto ordered the Aleutian Forces to Midway, and Nagumo's remaining forces and the cruisers covering the Midway Invasion Force, to engage the US fleet in a surface battle. Fletcher, not wanting a night surface battle in which he could not use his air power, retreated to the east to avoid the Japanese fleet.

1320 The *Hiryu* launched a second attack on the US fleet.

1445 The *Hiryu* was spotted by a US scout plane.

1454 The *Hiryu* force attacked the newly restored *Yorktown*. The Japanese believed they had hit a second US carrier. Although severly damaged and initially abandoned, the *Yorktown* was still afloat. The *Yorktown* is finally sunk at 0458 on 7 June by a Japanese submarine.

1550 **The US fleet launched an attack against the *Hiryu***

1701 **US aircraft attack the *Hiryu* while its aircrews were eating. The *Hiryu* sank at 0900 the next morning.**

5 June:

0250 Yamamoto cancelled Operation MI

This was a very brief chronology with many details left out. Only those facts important to your study of the principles of war were included. Now, the most important part of this reading is to match events to the principles. I will give at least one example for both the Japanese and the US forces. You may find the examples given could be placed under other principles. This is possible and it shows how complex the study of war can be.

Chapter Five

TYING IT ALL TOGETHER

The following list of the principles of war is found in AFM 1-1. For each principle I have listed the events which I think demonstrate that principle. As in the previous chapter, events of the Japanese will be in plain text and those of the US will be in bold.

OBJECTIVE:

Admiral Nagumo was given two incompatible objectives. The first to attack Midway Island in support of the invasion and second to destroy the US fleet. While the plan did not call for simultaneous accomplishment of both objectives it failed to adequately allow for the possibility. A different plan might have used two of his carriers to attack Midway and save two to attack enemy ships.

Admiral Nimitz had two complementary objectives. The first to hurt the Japanese fleet as much as possible and second to protect Midway Island by stopping the Japanese fleet.

OFFENSIVE:

Admiral Yamamoto chose to remain on the offensive, attacking Midway Island deep in enemy territory. This not only would keep the US reactive but expand the Japanese defensive perimeter and destroy the US fleet.

Admiral Nimitz also chose to assume the offensive. Using his knowledge of the Japanese plans (gained by his intelligence using "Magic") to take the initiative placing his carriers in a position to attack the Japanese fleet at the same time defending Midway Island.

SURPRISE:

Admiral Yamamoto was counting on catching the Americans off guard, forcing them to react the way he wanted. Because of his overconfidence and breakdown in security he failed to achieve the surprise his plan depended upon.

Admiral Nimitz, with the use of "Magic," was able to catch the Japanese in their own trap.

SECURITY:

The Japanese failed to maintain proper security. Overconfident in their secret code, they used it too often, and failed to change it frequently enough. His complex diversionary tactic (the Aleutians Campaign) failed to provide good mutual support of all forces.

The US had much more effective security, taking full advantage of the breakdown in Japanese security. Because of this breakdown, the US was able to trick the Japanese into revealing their target. They were able to speed the repair of the *Yorktown* and deploy forces early to be in a tactically advantageous position, as well as increase land based defense at Midway. Radar was used effectively to protect the fleet. This gave Admiral Spruance time to send out interceptors to meet oncoming attacks. The Japanese knew nothing of the approaching US aircraft until they were overhead. It also gave the ships time to prepare for attack, getting guns ready, stopping refueling, closing watertight doors, and filling drained fuel lines with CO_2. The *Yorktown* survived three separate air attacks while Japanese carriers went down after one attack.

MASS/ECONOMY OF FORCE:

The Japanese had overwhelming mass available but failed to use it. The diversionary tactics and fleet organization dispersed the numerically superior Japanese fleet. Overconfidence may have led to excessive economy of force.

The US used economy of force in the Aleutian area allowing Nimitz to concentrate virtually all other assets at Midway.

MANEUVER:

Admiral Nagumo nearly escaped attack by moving northeast after his first attack on Midway. VT-8's commander decided to search to the north after finding nothing but empty sea where Nagumo's carriers were suppose to be. He found them by smoke from the stacks of Nagumo's ships.

Admiral Fletcher avoided a night surface battle when his air power would be useless by moving away from the Japanese fleet.

TIMING AND TEMPO:

Poor timing and tempo by the Japanese may have been caused by friction or maybe just poor planning. The late establishment of the submarine cordon allowed the US fleet to slip out of Pearl Harbor undetected. The late launch of the *Tone* search plane allowed the US fleet to go undiscovered for 30 minutes. Using all four carriers for simultaneous launch and recovery operations left them most vunerable to attack.

Partially by design and partially by accident, US forces gained great advantage through timing and tempo. The early departure from Pearl Harbor avoided detection by the Japanese. Early launch of their strike force at maximum range caught the Japanese carriers unprepared and vunerable. Early attacks by land -based aircraft caused Zeros to expend fuel and convinced Nagumo not to launch an unescorted attack. Navigation and coordination problems in bad weather, and movement of the Japanese fleet caused US torpedo bombers to arrive first and draw down the Japanese defenses allowing the dive bombers to attack the Japanese carriers with impunity.

UNITY OF COMMAND:

Admiral Yamamoto placed himself in a position, by demanding radio silence, from which he could not exercise control. While not in command of the overall operation, Nagumo was put in the position of commanding all the engaged forces.

Admiral Nimitz had given each of his task force commanders simple instructions, telling them to do as much damage as possible while not getting themselves destroyed. By giving the on -scene commander complete control, he could stay at Hawaii and continuously monitor the course of events.

COHESION:

Both the Japanese and the US forces demonstrated tremendous cohesion. Airmen and sailors alike accepting virtual suicide missions and giving their all in the face of overwhelming odds.

Tomonaga, the leader of the first wave, led an attack on the US fleet in his aircraft that had been damaged in the morning raid. He knew before he took off that if the enemy did not kill him there would not be enough fuel for his return flight.

Ensign Gay continued his attack on the Japanese carriers knowing that he was the only plane left in his squadron. When Gay was shot down he was the only survior of the 30 men who had begun the attack only moments before.

LOGISTICS:

The Japanese failed to attack the fuel reserves and dock facilities at Pearl Harbor six months prior thus allowing the US to keep the capability to prosecute the war. Not only did they allow the Americans to keep their logistical capability, the lack of their capability to regenerate equipment and people after Coral Sea caused Nagumo to go into Operation MI without the striking force required.

The US logistical system that was not destroyed during the attack on Pearl Harbor allowed Nimitz to repair the *Yorktown* in time to face the Japanese at Midway.

The friction of war that was discussed earlier has been demonstrated many times during the Battle of Midway. Some examples are the late takeoff of the search plane from the *Tone* and the late arrival of the advance submarine force to cordon Pearl Harbor in search of the US fleet. Other examples such as the arrival of the first wave short on fuel when Nagumo's Zeros needed to refuel to continue protecting the fleet, and the commander of VT-8 deciding to search to the north after finding no sign of the enemy in the original search area. Examples are too many to name but I think you see how the simplest things are difficult in war.

Chapter Six

CONCLUSION

I have restated the principles of war as written in AFM 1-1 and given you the definition of friction of war as defined by Carl von Clausewitz in *ON WAR*. I have given you the events of the Battle of Midway as found in *The MIRACLE AT MIDWAY*. I put the principles in my own words and given you examples from the Battle of Midway to illustrate the principles. These are not my examples alone, but a list generally agreed upon by people who have studied the battle.

You have read how the failure of the Japanese to correctly apply the principles of war led to their ultimate defeat at the Battle of Midway which lead to their final defeat in World War II. You have also seen that applied correctly by a commander, the principles lead to victory. Finally you have seen that friction in war makes the simplest acts difficult. As I stated earlier, the principles are just guidelines but helpful ones.

It is now your job to incorporate this information with what you know and what you will learn and come up with your own understanding of the principles of war and friction of war.

BIBLIOGRAPHY

REFERENCES CITED

Books

1. Costello, John. The Pacific War. New York, NY: Rawson, Wade Publishers, Inc., 1981.

2. Howard, Michael and Peter Paret, (ed). On War. Princeton, NJ: Princeton University Press, 1984.

3. Jablonski, Edward. Airwar. Garden City, NY: Doubleday & Company, Inc., 1981.

4. Potter, E.B., (ed). Sea Power. Annapolis, Maryland: Naval Institute Press, 1982.

5. Prange, Gordon W. Miracle at Midway. New York, NY: Penguin Books, 1983.

6. Reynolds, Clark G. The Carrier War. Alexandria, VA: Time-Life Books, 1984.

7. Spector, Ronald H. Eagle Against the Sun. New York, NY: The Free Press (a Division of Macmillian, Inc.), 1985.

Official Documents

8. US Department of the Air Force. HQ United States Air Force Basic Doctrine. AF Manual 1-1. Washington, DC: Government Printing Office, 1984.